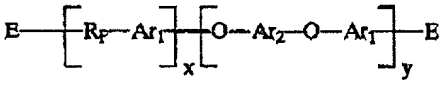
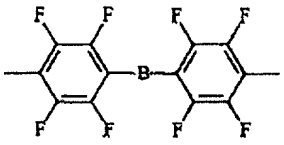
What is claimed is:

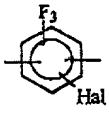
1. Fluorinated polyethers having a fluorinated aliphatic group at a main chain, which are represented by the following formula (1):

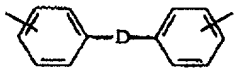


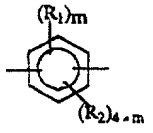
(1)

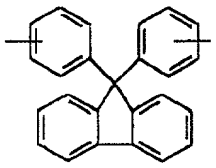
where R_F represents $OCH_2(CF_2)_nCH_2O$, or $OCH_2CF_2O(CF_2CF_2O)_nCF_2CH_2O$, where n is a natural number ranging from 1 to 12;

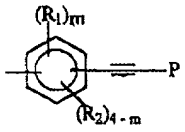
Ar_1 represents  , where B is not present or a C=O group, or

Ar_1 represents  , where Hal is one selected from F, Cl, Br and I;

Ar_2 represents  , where D is one selected from $-C(CF_3)_2$, $-C(CH_3)_2$, -CO-, $-SO_2-$, -O- and -S-, or

Ar_2 represents  , where R_1 and R_2 are the same or different and each independently represents a halogen atom selected from F, Cl, Br and I, and m is a natural number of 1-3, or

Ar_2 represents  ;

E represents H, or 

, where P is H or a substituted or unsubstituted phenyl group;

x is a number ranging from 0.1 to 1.0;

y is 1.0-x.

2. The fluorinated polyethers of Claim 1, which has no an ethynyl group at an end.

3. The fluorinated polyethers of Claim 1, which has a thermosettable ethynylphenol or phenylethynylphenol group at an end.

4. The fluorinated polyethers of Claim 1, in which R_F is a perfluoroalkyl group, and Ar_1 is a decafluorobiphenyl group.

5. The fluorinated polyethers of Claim 1, in which R_F is a perfluoroethylene oxide group, and Ar_1 is a decafluorobiphenyl group.

6. A waveguide type optical devices comprising a lower cladding layer formed on a flat substrate, a core layer formed on the lower cladding layer, and a upper cladding layer formed on the core layer, wherein the core and/or cladding layers are formed of the fluorinated polyether derivatives of Claim 1.